



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10

1200 Sixth Avenue, Suite 900  
Seattle, WA 98101-3140

OFFICE OF  
WATER AND  
WATERSHEDS

MAY 26 2017

Reply to  
Attn of: OWW-191

Ms. Sage Park  
Regional Director  
Washington Department of Ecology  
Central Regional Office  
1250 West Alder Street  
Union Gap, Washington 98903

Re: Request for Preliminary Clean Water Act Section 401 Certification of NPDES Draft Permit for  
United States Fish and Wildlife Service Leavenworth National Fish Hatchery, NPDES Permit  
No. 0001902

Dear Ms. Park:

We are providing the enclosed antidegradation evaluation of the draft National Pollutant Discharge Elimination System (NPDES) permit for the United States Fish and Wildlife Service Leavenworth National Fish Hatchery. This evaluation is for Washington Department of Ecology (Ecology) use in preparing a preliminary Clean Water Act (CWA) 401 certification for the draft NPDES permit. Our understanding is that the antidegradation evaluation will be included as part of Ecology's public notice of the preliminary 401 certification.

EPA is proposing to reissue the permit for this facility. EPA completed the public notice of the draft permit on February 3, 2017. We are asking for Ecology to review and provide a preliminary 401 certification for this permit action. We have been in discussions with Ecology and understand that Ecology plans to issue a preliminary 401 certification by June 30, 2017 with a 30-day public notice period. After the public notice period ends, Ecology will complete its response to comments by August 31, 2017. If Ecology is unable to meet these deadlines, we are asking Ecology to notify EPA as soon as possible.

If you have any questions on the enclosed materials, please contact Jenny Wu at 206-553-6328 or 1-800-424-4372 ext. 6328 or via email at [Wu.Jennifer@epa.gov](mailto:Wu.Jennifer@epa.gov).

Sincerely,

A handwritten signature in blue ink, which appears to read "Michael J. Lidgard", is positioned above the typed name.

Michael J. Lidgard, Manager  
NPDES Permits Unit

Enclosures

cc: David Bowen, Water Quality Program Manager, Washington Department of Ecology Central Regional Office

Sanjay Barik, Technical Unit Supervisor, Water Quality Program, Washington Department of Ecology Central Regional Office

Mark Peterschmidt, Watershed Unit Supervisor, Water Quality Program, Washington Department of Ecology Central Regional Office

Breean Zimmerman, Hydropower Projects Manager, Water Quality Program, Washington Department of Ecology Central Regional Office

The Environmental Protection Agency (EPA) is required under Section 301(b)(1)(C) of the Clean Water Act (CWA) and implementing regulations (40 CFR 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure compliance with state and tribal water quality standards, including antidegradation requirements. Since the Leavenworth National Fish Hatchery (Hatchery) discharges to Icicle Creek, which is located within the State of Washington, Washington's antidegradation implementation procedures were used to conduct the antidegradation analysis for this permit. Documents and files to develop the Fact Sheet and draft NPDES permit for the Hatchery Permit were used. Other documents that were used include:

- Washington Department of Ecology's (Ecology) Supplemental Guidance on Implementing Tier II Antidegradation;
- EPA's Fact Sheet for the Washington Hatchery General Permit; and
- Ecology's Wenatchee River Basin Dissolved Oxygen, pH, and Phosphorus Total Maximum Daily Load Study, April 2006.

Determining the Applicable Level of Protection. The State of Washington's antidegradation policy follows the federal regulations in establishing three tiers of protection:

- Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollution.
- Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary to accommodate important economic or social development and is in the overriding public interest.
- Tier III prevents the degradation of waters identified as constituting an outstanding national or reservation resource and applies to all sources of pollution.

The Hatchery discharges to Icicle Creek, which qualifies for both Tier I and Tier II protection, as explained in more detail below.

#### Tier I Protection

A facility must meet Tier I requirements to ensure that all existing and designated uses are maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in Chapter 173-201A WAC.

In order to maintain and protect designated and existing beneficial uses, a permitted discharge must comply with the narrative and numeric criteria of the State/Tribe's water quality standards. Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited and a Total Maximum Daily Load (TMDL) must be prepared for those pollutants causing the impairment. Discharge permits must contain limitations that are consistent with the wasteload allocations (WLAs) in an EPA-approved TMDL. A permit with effluent limitations consistent with the WLA from an applicable TMDL will provide the level of water quality necessary to support existing and designated uses and therefore satisfies Tier I antidegradation requirements.

The applicable designated uses for Icicle Creek from the mouth to the National Forest Boundary are core summer habitat, primary contact recreation, domestic water, industrial water, agricultural water, stock water, wildlife habitat, harvesting, commerce/navigation, boating, and aesthetics. (Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A WAC, Revised March 2017). In addition, there are supplemental spawning uses during certain times of the year for the portion of Icicle Creek to which the Hatchery discharges.

The draft NPDES Permit includes effluent limitations and monitoring requirements that would ensure that the facility maintains a level of water quality necessary to protect the existing and designated uses, as required by 40 CFR 131.12(a)(1) and 131.35(e)(2)(i). The draft NPDES permit also ensures compliance with the applicable water quality criteria as discussed in the Fact Sheet for the Hatchery permit. See Fact Sheet at pages 20-22.

Where technology-based limits are not protective enough to meet water quality standards, the EPA develops water quality-based effluent limits (WQBELs). The segment of Icicle Creek that the Hatchery discharges to is impaired for dissolved oxygen, pH, and temperature. In August 2007, the EPA approved Ecology's *Wenatchee River Watershed Temperature TMDL*, which included a wasteload allocation (WLA) for temperature for the Hatchery. In 2009, the EPA approved Ecology's *Wenatchee River Watershed Dissolved Oxygen and pH TMDL Water Quality Improvement Report*, which included a WLA for total phosphorus for the Leavenworth National Fish Hatchery. In 2011, the Washington Department of Ecology (Ecology) revised their water quality standards and included a segment of Icicle Creek that requires special protection for spawning and incubation. The numeric temperature criteria were more stringent than the temperature WLA in Ecology's 2007 temperature TMDL. As a result, in developing the effluent limits in the draft NPDES permit, the EPA used the more stringent temperature criteria that are applicable to the segment of Icicle Creek where the Hatchery's outfalls are located. In addition, the draft NPDES permit includes effluent limits that are consistent with the total phosphorus WLA in the 2009 TMDL, which also ensures that the discharge meets Washington's water quality standards for dissolved oxygen and pH.

The effluent limits in the proposed draft permit contain limits for settleable solids and net total suspended solids, temperature, phosphorus, and dissolved oxygen. The draft permit also prohibits discharges of toxic substances, including drugs, pesticides, or other chemicals, in toxic amounts that may cause or contribute to an impairment of designated uses in violation of the State of Washington water quality standards. The draft NPDES permit requires additional monitoring for total residual chlorine, total ammonia as N, pH, turbidity, and flow in the effluent. The draft permit further requires monitoring in Icicle Creek for temperature, total phosphorus, pH, ammonia nitrogen as N, turbidity, and dissolved oxygen.

The effluent limitations and monitoring requirements contained in the draft Permit ensure compliance with the narrative and numeric criteria in the water quality standards. Therefore, it was determined that the permit will protect and maintain existing and designated beneficial uses in compliance with the Tier I provisions for all pollutants including DO, pH, and temperature.

## Tier II Protection

A Tier II analysis consists of an evaluation of whether the proposed degradation of water quality that would be associated with a new or expanded action would be both necessary and in the overriding public interest. A Tier II analysis focuses on evaluating feasible alternatives that would eliminate or significantly reduce the level of degradation. The analysis also includes a review of the benefits and costs associated with the lowering of water quality. New discharges and facility expansions are prohibited from lowering water quality without providing overriding public benefits.

Under Ecology's antidegradation policy, the Tier II evaluation involves determining whether a Tier II analysis is needed. Ecology's *Water Quality Program Guidance Manual* from September 2011 outlines the process to evaluate whether a Tier II analysis is necessary and includes the following steps:

1. Does the action require an authorization that could trigger a Tier II analysis? *See 173-201A-320(2).*
2. Is the action considered to be a "new or expanded" action?
3. Would the new or expanded action cause a measurable change in water quality in the edge of the chronic mixing zone? *See 173-201A-320(3).*

Washington water quality standards define a measurable change to include:

- (a) *Temperature increase of 0.3°C or greater;*
- (b) *Dissolved oxygen decrease of 0.2 mg/L or greater;*
- (c) *Bacteria level increase of 2 cfu/100 mL or greater;*
- (d) *pH change of 0.1 units or greater;*
- (e) *Turbidity increase of 0.5 NTU or greater; or*
- (f) *Any detectable increase in the concentration of a toxic or radioactive substance.*

This process was used to determine whether a Tier II analysis was needed.

1. *Does the action require an authorization that could trigger a Tier II analysis?*

WAC 173-201A-320(2) describes Tier II waters as "Protection of waters of higher quality than the standards." Since the draft NPDES permit authorizes discharges for pollutants that are of higher quality than the standards in Icicle Creek, the action could trigger a need for a Tier II analysis. Therefore, whether the action is considered to be "new or expanded" was evaluated.

2. *Is the action considered to be a "new or expanded" action?*

It was determined that the Hatchery has a new or expanded discharge compared to the last NPDES permit that was issued. As such, the discharge from the Hatchery was evaluated to determine whether it would cause a measurable change in water quality that would trigger the need for a Tier II analysis.

3. *Would the new or expanded action cause a measurable change in water quality in the edge of the chronic mixing zone? See 173-201A-320(3).*

Washington water quality standards define a measurable change to include:

- (a) Temperature increase of 0.3°C or greater;*
- (b) Dissolved oxygen decrease of 0.2 mg/L or greater;*
- (c) Bacteria level increase of 2 cfu/100 mL or greater;*
- (d) pH change of 0.1 units or greater;*
- (e) Turbidity increase of 0.5 NTU or greater; or*
- (f) Any detectable increase in the concentration of a toxic or radioactive substance.*

As described earlier, Tier I protections apply to all waters. Ecology's guidelines state that "Tier II is used to ensure that waters of a higher quality than the criteria assigned in the standards are not degraded unless such lowering of water quality is necessary." Ecology uses a pollutant-by-pollutant analysis for antidegradation analyses. After discussions between Ecology and the EPA, each pollutant listed above was evaluated to determine whether Tier I or Tier II protections were appropriate. Icicle Creek is impaired for temperature, dissolved oxygen, and pH. Therefore, for these parameters, waters are not of a higher quality than the criteria, and Tier I protections are appropriate. Tier II protections were determined to be appropriate for bacteria, turbidity, and toxic or radioactive substances.

- (a) Temperature increase of 0.3°C or greater;*
- (b) Dissolved oxygen decrease of 0.2 mg/L or greater*
- (d) pH change of 0.1 units or greater;*

Tier I protections are appropriate for temperature, dissolved oxygen, and pH since Icicle Creek is impaired for those pollutants. Tier II protection does not apply. The draft permit includes temperature limits written to the revised 2011 water quality standards and phosphorus limits consistent with the total phosphorus WLA in the 2009 TMDL. These limits and monitoring requirements ensure that the discharge meets Washington's water quality standards for temperature, dissolved oxygen, and pH. Therefore, the draft NPDES permit complies with Tier I protection for temperature, dissolved oxygen, and pH.

- (c) Bacteria level increase of 2 cfu/100 mL or greater;*

Tier II protection is appropriate for bacteria, since Icicle Creek is not impaired for bacteria. The draft NPDES permit does not authorize discharges of bacteria. Aquaculture facilities are not considered to be significant sources of pathogens. In 2002-2003, Ecology collected fecal coliform bacteria samples at the Hatchery from Outfalls 001 and 002. Both outfalls had low concentrations of bacteria (i.e. 1-2 cfu/100mL). Therefore, the discharges will not cause a measurable change to existing water quality, and this parameter does not trigger a Tier II antidegradation analysis.

- (e) Turbidity increase of 0.5 NTU or greater;*

Tier II protection is appropriate for turbidity, since Icicle Creek is not impaired for turbidity. This draft NPDES Permit includes numeric limits and monitoring requirements for total

suspended solids (TSS) and settleable solids (SS). The proposed limits for TSS and SS are equal or more stringent than limits from the 1974 NPDES permit. The draft NPDES permit also includes monitoring requirements for turbidity during cleaning events throughout the year. In addition, various Best Management Practices (BMP) Plan Operational Requirements are set forth in the permit to ensure that minimal solids will be discharged by the Hatchery. For example, the raceways and ponds must be cleaned at such frequency and in such a manner that minimizes accumulated solids discharged to waters of the U.S. Similarly, fish feeding must be conducted so as to minimize the discharge of unconsumed food. Therefore, the discharges will not cause a measurable change to existing water quality and this parameter does not trigger the need for a Tier II antidegradation analysis.

*(f) Any detectable increase in the concentration of a toxic or radioactive substance.* Tier II protection is appropriate for toxic or radioactive substances, since Icicle Creek is not impaired for these pollutants. The Hatchery uses or generates the following chemicals: ammonia, formalin, and iodine. The effluent from the industry is well documented, and no information exists from the facility to indicate that there are other pollutants of concern than those identified. The draft NPDES permit includes narrative limitations for each outfall that *“Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristics water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health.”*

Fish excrete small amounts of ammonia nitrogen which in high doses can be toxic to fish, depending on pH and temperature that controls the ionic species of the ammonia-ammonium complex. The Hatchery closely monitors the health of their fish so ammonia toxicity would be unlikely in the facilities, much less downstream of them. In addition, the draft NPDES permit includes monthly ammonia monitoring requirements for outfalls that discharge directly to waters of the U.S.

The Hatchery applies therapeutic chemicals, including formalin and iodine to promote fish health. As per a BMP requirement in this permit, all drugs and pesticides must be used in accordance with applicable label instructions (FIFRA or FDA), except when part of an Investigational New Animal Drug Study or as an extralabel drug use as prescribed by a veterinarian. The EPA and Ecology conducted a study in 2016 on formalin discharges from aquaculture facilities, which included the Hatchery. The formaldehyde concentration, which is the potentially toxic portion of formalin, in effluent from the Hatchery peaked at less than 3ppm, compared to a 10 ppm threshold from the U.S. Food and Drug Administration’s (FDA) Acceptable Formaldehyde Discharge Concentration.

The NPDES Fact Sheet for the Hatchery describes the PCB studies done in anadromous fish and sediment in the Wenatchee River and Icicle Creek since 1997. Based on water sampling results from 2014-2015, Ecology concluded there is no obvious source of PCBs in Icicle Creek. In addition, after two years of sampling sediment and periphyton near the Hatchery, there is no evidence the Hatchery is contributing significant amounts of PCBs to the creek. Out of an abundance of caution, the draft NPDES permit includes

BMP provisions to minimize PCBs discharged from the Hatchery. See pages 25-26 of the NPDES Fact Sheet.

The Hatchery does not use chlorine or Chloramine-T. However, if the Hatchery uses chlorine or Chloramine-T in the future, the draft NPDES permit requires daily monitoring when the chemical is being used and compliance with the narrative limitations for toxics.

Therefore, issuance of the permit does **not** trigger the need for a Tier II antidegradation analysis because the discharges authorized under the permit will not cause a measurable change to existing water quality where Tier II protections apply.

#### Summary

Tier I protections are appropriate for temperature, pH, and dissolved oxygen, since Icicle Creek is impaired for those parameters. The draft NPDES permit incorporates phosphorus WLAs from the TMDL and the revised 2011 temperature criteria to ensure that existing and designated uses are protected for these and other parameters in Icicle Creek.

For the Tier II evaluation, the Hatchery's discharges allowed under the draft NPDES permit will not cause a measurable change in water quality for bacteria, turbidity, and toxics. Therefore, a Tier II analysis is not necessary.